

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of updating XML-schema-based data to conform to an updated XML schema, the method comprising:

based on (a) a first XML schema that indicates a first structure of one or more first XML attributes, (b) one or more first values that correspond to said one or more first XML attributes, and (c) a correlation between said one or more first values and said one or more first XML attributes, generating first data that conforms to said first structure; and

based on (a) said first data, (b) a set of one or more transformations, and (c) a correlation between one or more of said one or more first values and ~~one or more of said one or more second XML attributes~~, generating second data that conforms to a second structure of said one or more second XML attributes;

wherein said second structure is indicated by a second XML schema that differs from said first XML schema.
2. (Currently Amended) A method of updating XML-schema-based data to conform to an updated XML schema, the method comprising:

based on (a) a first XML schema that indicates a first structure of one or more first XML elements, (b) one or more first values that correspond to said one or more first XML elements, and (c) a correlation between said one or more first values and said one or more first XML elements, generating first data that conforms to said first structure; and

based on (a) said first data, (b) a set of one or more transformations, and (c) a correlation between one or more of said one or more first values and ~~one or more of said one or more second XML elements~~, generating second data that conforms to a second structure of said one or more second XML elements;

wherein said second structure is indicated by a second XML schema that differs from said first XML schema.

3. (Original) The method of Claim 2, wherein said one or more transformations are expressed in Extensible Stylesheet Language (XSL).
4. (Original) The method of Claim 2, wherein said one or more first values are stored in one or more database tables.
5. (Original) The method of Claim 2, further comprising:
based on said first XML schema and one or more second values that correspond to said one or more first XML elements, generating third data that indicates said first structure and a correlation between said one or more second values and said one or more first XML elements; and
based on said third data and said set of one or more transformations, generating fourth data that indicates said second structure and a correlation between one or more of said one or more second values and one or more of said one or more second XML elements;
wherein said one or more second values differ from said one or more first values.
6. (Original) The method of Claim 2, further comprising:

based on a database table that corresponds to an XML element indicated by said first XML schema, generating a first Data Definition Language (DDL) statement that, when executed, will cause a database table that corresponds to said XML element to be created.

7. (Original) The method of Claim 6, further comprising:
executing said first DDL statement; and
based on said second data, inserting one or more of said one or more first values into a
database table that was generated as a result of executing said first DDL
statement.
8. (Original) The method of Claim 6, further comprising:
generating a second DDL statement that, when executed, causes effects of said first DDL
statement to be reversed.
9. (Original) The method of Claim 8, further comprising:
determining whether an error has occurred in executing said first DDL statement; and
in response to determining that said error has occurred, executing said second DDL
statement.
10. (Original) The method of Claim 6, further comprising:
generating one or more rollback statements that, when executed, cause said inserting to be
reversed.
11. (Original) The method of Claim 10, further comprising:
determining whether an error has occurred in said inserting; and

in response to determining that said error has occurred, executing said one or more rollback statements.

12. (Original) The method of Claim 2, further comprising:

based on said first XML schema and a third XML schema that indicates a third structure that is based on said first structure, generating a fourth XML schema that indicates said first structure and a correlation between one or more XML elements in said first structure and one or more XML elements in said third structure.

13. (Original) The method of Claim 2, further comprising:

based on an existing database table that corresponds to an XML element indicated by said first XML schema, generating a Data Definition Language (DDL) statement that, when executed, will cause a database table that corresponds to said XML element to be created;

after generating said DDL statement, performing steps comprising:

deleting said first XML schema; and

deleting said existing database table; and

after deleting said first XML schema, performing steps comprising:

registering said second XML schema with a database system;

executing said DDL statement; and

based on said second data, inserting one or more of said one or more first values

into a database table that was generated as a result of executing said DDL statement.

14. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 1.
15. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 2.
16. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 3.
17. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 4.
18. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 5.
19. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 6.
20. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 7.

21. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 8.
22. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 9.
23. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 10.
24. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 11.
25. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 12.
26. (Previously Presented) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 13.
27. (Currently Amended) A method comprising:

a procedure receiving an identity of an existing XML schema;

the procedure receiving an identity of an evolved XML schema that is a version of the existing XML schema that incorporates one or more modifications;

the procedure receiving a reference to a transformation set that indicates changes that, when made to instance documents that conform to the existing XML schema, will cause the instance documents to conform to the evolved XML schema;

the procedure reading data for existing XML-schema-dependent instance documents, wherein the data~~that~~ do not contain tags of the existing XML schema;

based on said data, the procedure generating, for each of the existing XML-schema-dependent instance documents, a corresponding XML-schema-independent instance document that contains the tags of the existing XML schema, thereby generating XML-schema-independent instance documents that conform to the existing XML schema;

for each particular XML-schema-independent instance document of the XML-schema-independent instance documents, the procedure applying, to the particular XML-schema-independent instance document, one or more transformations in the transformation set, thereby producing evolved XML-schema-independent instance documents that conform to the evolved XML schema instead of the existing XML schema;

~~the procedure identifying one or more database structures that are based on the existing XML schema, wherein the one or more database structures contain content values that are contained in the existing XML-schema-dependent instance documents;~~

~~for each particular database structure of the one or more database structures, the procedure generating one or more Data Definition Language (DDL) statements~~

~~that, when executed by a database server, will cause the database server to create~~
~~the particular database structure;~~
~~the procedure instructing the database server to delete the existing XML schema;~~
~~the procedure instructing the database server to drop one or more database structures that~~
~~are based on the existing XML schema;~~
~~the procedure instructing the database server to register the evolved XML schema;~~
the procedure instructing the database server to execute [[the]] one or more DDL
statements, ~~thereby creating~~ to create evolved database structures that are based on
the evolved XML schema; and
the procedure populating one or more columns of the evolved database structures with
content values of column-corresponding XML elements that are contained in the
evolved XML-schema-independent instance documents.

28. (Previously Presented) A tangible computer-readable medium carrying one or more
sequences of instructions which, when executed by one or more processors, causes the
one or more processors to perform the method recited in Claim 27.

29. (New) A method comprising:
receiving an identity of an existing XML schema;
receiving an identity of an evolved XML schema that is a version of the existing XML
schema that incorporates one or more modifications;
receiving a reference to a transformation set that indicates changes that, when made to
instance documents that conform to the existing XML schema, will cause the
instance documents to conform to the evolved XML schema;

reading data for existing XML-schema-dependent instance documents, wherein the data do not contain tags of the existing XML schema;

based on said data, generating, for each of the existing XML-schema-dependent instance documents, a corresponding XML-schema-independent instance document that contains the tags of the existing XML schema, thereby generating XML-schema-independent instance documents that conform to the existing XML schema;

for each particular XML-schema-independent instance document of the XML-schema-independent instance documents, applying, to the particular XML-schema-independent instance document, one or more transformations in the transformation set, thereby producing evolved XML-schema-independent instance documents that conform to the evolved XML schema instead of the existing XML schema;

instructing the database server to execute one or more DDL statements to create evolved database structures that are based on the evolved XML schema; and

populating one or more columns of the evolved database structures with content values of column-corresponding XML elements that are contained in the evolved XML-schema-independent instance documents.

30. (New) A tangible computer-readable medium carrying one or more sequences of instructions which, when executed by one or more processors, causes the one or more processors to perform the method recited in Claim 29.